TOSHIBA SOLID STATE I/O INTERFACE MODULE

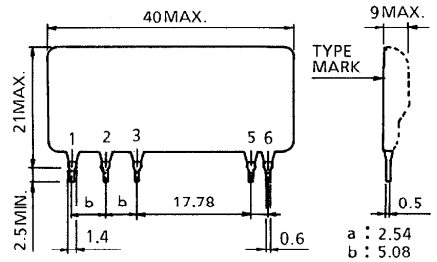
TF1109

DC OUTPUT MODULE

Unit in mm

TOSHIBA TF1109 is DC 24V Line Controlled I/O Interface Module and it includes the optical isolator.
Using this Module, you can design high reliability and compact system.

- DC Load Current : I_O = 1A (Max.)
- Recommended DC Load Voltage : V_O = 10~30V DC
- Recommended Control Input Voltage : $V_{F(IN)}$ = 5V
- 1500V AC Optical Isolation
- Including Surge Voltage Suppressor
- Input is Compatible with TTL Logic
- Small Size and Light Weight



1. OUTPUT (+)
2. V_{CC}
3. OUTPUT (−)
5. INPUT (+)
6. INPUT (−)

JEDEC	—
EIAJ	—
TOSHIBA	10-40A2A

Weight : 7.5g

MAXIMUM RATINGS (Ta = 25°C)
INPUT (CONTROL)

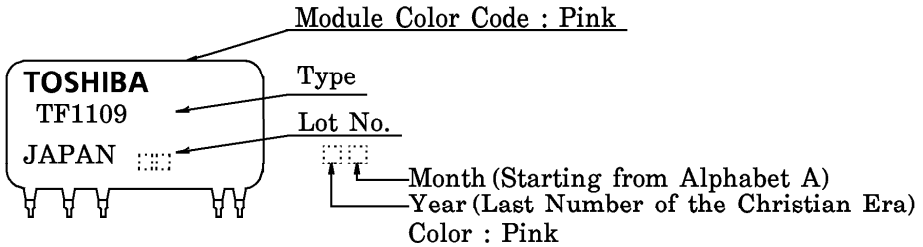
CHARACTERISTIC	SYMBOL	RATING	UNIT
Control Input Voltage (DC) (Note 1)	$V_{F(IN)}$	6	V
Control Input Current	$I_{F(IN)}$	2	mA
Reverse Voltage (DC)	$V_{R(IN)}$	5	V

OUTPUT (DC LOAD)

Output Load Voltage		V_O	35	V
Output Supply Voltage		V_{CC}	35	V
Output Load Current	DC	I_O	1	A
	10ms	I_{OP}	2	
Operating Frequency Range		f	65	Hz
Isolation Voltage (Input-Output) (AC)		BV_S / AC	1500 (1min)	V
Operating Temperature Range		T_{opr}	−20~80	°C
Storage Temperature Range		T_{stg}	−20~80	°C
Lead Soldering Temperature (10s)		T_{sol}	260	°C

Note 1 : Driving input rating : Insert an external resistance into I/O when the power supply over 6V is used.

MARK



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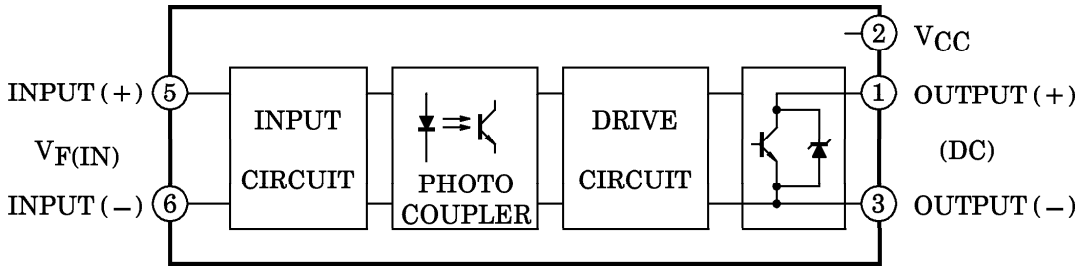
BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 24V)

INPUT (CONTROL)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Pick Up Voltage	V_{FT}	V_O = 24V, I_O = 1A Resistive Load	—	2.3	4.5	V
Drop Out Voltage	V_{FD}		0.6	1.5	—	
Input Resistance	R_{IN}	—	—	3	—	kΩ

OUTPUT (DC LOAD)

Off-State Leakage Current	I_{OD}	V_O = 24V	—	—	0.5	mA
Peak On-State Voltage	V_{SAT}	I_O = 1A, $V_{F(IN)}$ = 5V, V_O = 24V	—	0.45	0.65	V
Breakdown Voltage	V_{BR}	I_{OD} = 9mA, 3pin to 1pin	35	—	40	V
Turn-On Time	t_{on}	$V_{F(IN)}$ = 0→5V, V_O = 24V, I_O = 1A, Resistive Load	—	20	100	μs
Turn-Off Time	t_{off}	$V_{F(IN)}$ = 5→0V, V_O = 24V, I_O = 1A, Resistive Load	—	0.5	1	ms
Isolation Resistance	R_S	V = 1kV, R.H = 40~60%	—	10^{10}	—	Ω

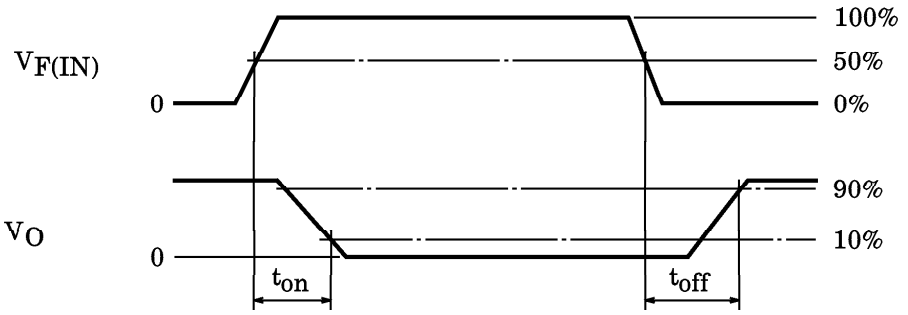
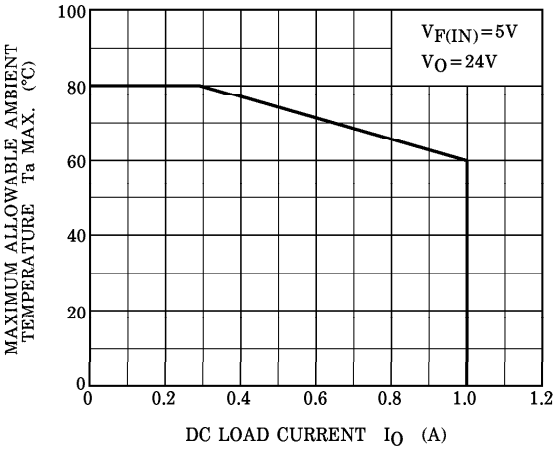


Fig.1 SWITCHING TIME TEST CONDITION

Ta MAX. – I_O



P_C – I_O